

REMARKS

Claims 1 and 2 are amended to recite the signaling agents listed at page 11 of the specification. Claim 12 is amended to depend from claim 3. No new matter is added by this Amendment. Upon entry of the Amendment, which is respectfully requested, claims 1-25 will be pending.

Response to Claim Rejections under 35 U.S.C. § 112

Referring to page 4 of the Office Action, claims 15 and 23 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. In particular, the Examiner indicates that the definition of “nkat/g” is indefinite.

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

At pages 3 and 5 of the Action, the Examiner states:

In general activity values are measured in comparison to a standard set of assay conditions not a set of conditions which changes based on variable temperatures/pH's [see e.g. Units of Enzyme Activity pg. 319 #1]. Since the Applicant gives variable temperatures/pHs that can be used, the definition of nkat/g is also necessarily variable and indefinite.

The Examiner's argument fails to distinguish between two distinct senses of activity value. In “Chapter 4 (Enzyme Units) of *Enzyme Nomenclature: Recommendations 1964* of the International Union of Biochemistry” of *Units of Enzyme Activity* at page 319, a standard unit of enzyme activity is defined as that amount which will catalyze the transformation of 1 micromole of the substrate per minute under standard conditions. It is noted that Pederson calculates laccase enzyme activity in micromol per minutes.

According to *Units of Enzyme Activity*, the katal was introduced at the same time to define a new unit of enzyme activity. Particularly, the katal is used to express catalytic activity, and its numerical quantity value depends on the experimental conditions. *Units of Enzyme Activity* pg. 319 discloses that katal enzyme activity is the property measured by the increase in the rate of reaction of a specified chemical reaction that the enzyme produces in a specific assay system.

A person having ordinary skill in the art recognizes the difference between enzyme activity measure in micromol per minutes and enzyme activity measures in katals. Furthermore, the present specification provides sufficient disclosure of the activation treatment described at page 7 and the specific conditions of each chemical reaction described in the working examples so that enzyme activity can be calculated in katals. The determination of the enzyme activities has been carried out in the examples in the same conditions (pH, temperature) using standard activity measurements in the conditions in which the enzyme treatments of the materials have been effected.

Accordingly, it is respectfully requested that the § 112, second paragraph, of claims 15 and 23 be withdrawn.

Response to Claim Objection

Referring to page 7 of the Action, claim 12 is objected to because the Examiner indicates it should dependent on claim 3 not claim 1 for proper antecedent basis of the claimed “substance capable of catalyzing...”.

Claim 12 is amended to depend from claim 3 as suggested by the Examiner, therefore, withdrawal of the objection is respectfully requested.

Response to Claim Rejections under 35 U.S.C. § 102

Referring to page 8 of the Action, claims 1-14, 16-20, 22, 24 and 25 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,187,136 (Pederson).

The Examiner cites Pederson as disclosing oxidizing lignocellulosic phenol groups and then contacting the cellulose with a compound with a first functional group, ferulic acid, which acts as a signaling agent.

As previously noted, the incorporation of ferulic acid to the fiber in Pederson does not introduce a property “foreign” to the fiber as required by the signaling agents of the invention as recited in claim 1. Further, claims 1 and 2 are amended to recite signaling agents as listed at page 11 of the specification which do not include ferulic acid. Additionally, there is no apparent reason to modify the disclosure of Pederson with a reasonable expectation of success in achieving the claimed invention. Therefore, Pederson does not anticipate or render obvious the presently claimed invention.

Accordingly, Applicants respectfully request the reconsideration and withdrawal of the § 102 rejection of claims 1-14, 16-20, 22, 24 and 25 based on Pederson.

Response to Claim Rejections under 35 U.S.C. § 102/103

Referring to page 11 of the Action, claims 15 and 23 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over Pederson.

Claims 15 and 23 depend from claim 1, and thus, are patentable by virtue of their dependencies from claim 1 which is patentable over Pederson for the reasons discussed above.

Accordingly, Applicants respectfully requested reconsideration and withdrawal of the § 102 or, in the alternative, § 103 rejection of claims 15 and 23 based on Pederson.

Response to Claim Rejections under 35 U.S.C. § 103

Referring to page 12 of the Action, claims 1, 5 and 21 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Handbook for Pulp and Paper Technologists by Smook (Smook) in view of U.S. Patent No. 5,935,383 (Sun).

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

Smook relates to peroxides that are used to brighten mechanical and chemi-mechanical pulps.

Sun relates to modification of bleached fiber to make it more anionic by attaching to the hydroxylic groups of the cellulose anionic components by means of a chemical reaction. These anionic groups bond, by electrical interaction, cationic paper chemicals.

Smook and Sun are different in their features and scope, and therefore, a person having ordinary skill in the art would not have been motivated to combine Smook and Sun. Nevertheless, neither Smook nor Sun teaches or suggests all the elements of the presently claimed invention. Therefore, even if combined, the claimed invention would not have been achieved. Thus, the presently claimed invention is not rendered obvious by the cited references, whether taken alone or in combination.

Accordingly, withdrawal of the § 103 rejection of claims 1-6, 8-11 and 13-30 over Smook in view of Sun is respectfully requested.

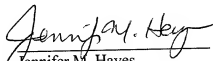
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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